PATENT

REMARKS

This paper is responsive to the Final Office Action dated August 11, 2005. Claims 1, 3, 5-18 and 20-31 were examined. Applicant appreciates the indication that claims 1, 3, 5-18, 20-23, 26, 27, 30 and 31 are allowed. Claims 24 and 28-29 are rejected under 35 U.S.C. § 102(b) as being anticipated by Greene et al. (U.S. Patent No. 5,579,455). Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Greene et al. (U.S. Patent No. 5,579,455), as applied to claims 24 and 28-29.

Claims 24, 25, 28, and 29

With regards to claim 24, applicant respectfully submits that claim 24 distinguishes over Greene. Claim 24 recites a hierarchical image depth buffer, the hierarchical image depth buffer containing a plurality of entries, each of the plurality of entries associated with a set of the plurality of depth values within the image depth buffer, the set containing more than one depth value, at least one of the entries containing multiple near depth values and a far depth value corresponding to the set of the plurality of depth values.

Applicant still maintains that Greene fails to teach that at least one of the entries contains multiple near depth values. Instead, Greene teaches that each of the depth elements 512 can contain a Z-max element having the farthest depth of any display cell covered by the depth element 512, and a Z-min element containing the nearest depth value of any of the display cells 204 covered by the depth element 512. See col. 11, lines 7-12 and Figs. 5 and 5A.

Paragraph 14 the Office Action, in responding to Applicant's arguments, states that "at granularity level 508 a single given depth element 512 is considered to represent the Z-min and Z-[max] for four depth elements 512 (multiple near and far) from granularity level 506 or instead represent the Z-min and Z-[max] for sixteen depth elements 512 (multiple near and far) from granularity level 504.

The depth value in the elements 512 in different hierarchies in Greene simply represent a different number of display cells. In the Greene example of Fig. 5A, a Z-max value in an element 512 in level 504 represents one display cell 204 (col. 41-44), a Z-max value in an element 512 in level 506 represents the maximum depth value of 4 displays cells, a Z-max value

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in an element 512 in level 508 represents the maximum depth value of 16 display cells and the Z-max value in the element 512 in level 510 represents the maximum depth value of 64 display cells. However, applicant respectfully maintains that there is still only one Z-max value in each element and providing only one value fails to teach the claimed multiple near depth values and a far depth value in each entry.

To state it another way, Greene teaches at col. 10, lines 53-58 that "[e]ach Z-max element 512 in level 508 contains the farthest depth [value] of all of its corresponding Z-max elements in level 506 which, due to the transitive nature of the "farthest" operator, is also the farthest depth of all of the display cells 204 covered by the Z-max element 512." Thus, each Z-max element in a higher level represents the farthest Z-max element of the Z-max elements of the level below it to which it corresponds. In Fig. 5A, each element 512 in the levels 506, 508, and 510 correspond to four elements 512 in the level immediately below. However, each element 512 still has only one Z-max element, even if that element is the largest of four Z-max elements. Applicant submits that the "entry" in claim 24 corresponds to element 512 of Greene. Claim 24 requires that at least one of the entries contains multiple near depth values and a far depth value. Applicant respectfully submits that Greene fails to teach multiple near depth values and a far depth value in an element or entry. Accordingly, applicants respectfully submit that claim 24 distinguishes over Greene.

Claim 25 depends on claim 24 and is patentable for at least the reason given for claim 24.

With regards to claim 28, applicant respectfully submits that claim 28 distinguishes over Greene. Claim 28 recites that at least one of the entries of the hierarchical image depth buffer includes multiple near and far values. Greene teaches each depth element has only a single near and far value. Greene teaches that each of the depth elements 512 can contain not only a Z-max element having the farthest depth of any display cell covered by the depth element 512, but also a Z-min element containing the nearest depth value of any of the display cells 204 covered by the depth element 512. Col. 11, lines 7-12. But Greene fails to teach that one of the depth elements includes multiple near and far values. Accordingly, applicant submits that claim 28 distinguishes over Greene.

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With regards to claim 29, applicant respectfully submits that claim 29 distinguishes over Greene. Claim 29 recites that each of the entries of the hierarchical image depth buffer includes <u>at least two pairs of near and far values</u>. Greene teaches each element having only a single near and far entry as pointed out above, not at least two pairs. Accordingly, applicant submits that claim 29 distinguishes over Greene.

In view of the above amendments and remarks, all claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

Respectfully submitted,

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